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ENDANGERED SPECIES

Technical Bulletin

Department of the Interior, U.S. Fish and Wildlife Service, Washington, D.C. 20204

Listing Protection Proposed for Six Species

Six species—three plants, a turtle, a snail, and a mussel—were proposed by the Fish and Wildlife Service during July for listing as Threatened or Endangered. If the proposals are approved, the following taxa will be eligible for Endangered Species Act protection:

Cyanea superba

This Hawaiian plant, a perennial in the bellflower family (Campanulaceae), has a palm-like appearance. Its unbranched trunk grows to 20 feet (6 meters) tall and is topped by a terminal rosette of large leaves. Numerous white or cream-colored flowers are borne on pendent inflorescenses.

Endemic to the island of O'ahu, *Cyanea superba* currently is known from two small sites in the Waianae Mountains. Fewer than 20 individuals remain. One site is within a State forest reserve and the other is on the federally managed Makua Military Reservation. The species is adapted to growing on sloping terrain with a heavily shaded but open understory.

Both populations face serious threats relating to the introduction of non-native species. Aggressive, exotic, weedy plants are overcrowding the sites and may be preventing the establishment of *Cyanea* seedlings. Feral pigs in the area threaten this species by uprooting, and possibly even eating, the plants. The Makua population, which occurs near the fringe of an artillery range impact area, also may be at risk from wildfires ignited by exploding shells.

On July 17, 1990, the Service proposed to list *Cyanea superba* as an Endangered species. If the proposal is approved, the Department of Defense will be required to ensure that none of its activities are likely to jeopardize the species' survival.

Fringed Campion (*Silene polypetala*)

The fringed campion, an attractive perennial herb in the carnation or pink family (Caryophyllaceae), grows in hardwood forests, usually on moist slopes and along creek bottoms. It is known from 15 sites within 2 distinct areas: a 4-county section of central Georgia at the south end of the piedmont region and a 2-county area near the confluence of the Flint and Apalachicola Rivers on each side of the Georgia/Florida border.

This plant apparently has been extirpated from at least one site, and most of the remaining populations are vulnerable. A recent status survey found that most fringed campion sites are subject to logging and subsequent management of the land for pulpwood production. Other threats include residential development and encroachment by an aggressive, non-native weed, the Japanese honeysuckle (*Lonicera japonica*). Accordingly, the Service has proposed to list the fringed campion as an Endangered species (F.R. 7/11/90).

Most of the fringed campion sites are on privately owned land. At least some important habitat, however, is on property at Lake Seminole on the Georgia/Florida border that is administered by the Army Corps of Engineers. The Corps is managing the area to conserve this and other rare plants. Listing the fringed campion as Endangered would reinforce Federal conservation measures and supplement the protection now given this species by Georgia and Florida under State law.

photo by Robert Gustafson

With its solitary, unbranched trunk and terminal rosette of large leaves, Cyanea superba has a palm-like appearance.

Schweinitz's Sunflower (*Helianthus schweinitzii*)

Schweinitz's sunflower, a perennial herb in the aster family (Asteraceae), is native to the piedmont region of North and South Carolina. Like most sunflowers, this species is a plant of full sun or the light shade of open woodlands. Historically, its prairie-like habitat was maintained by natural disturbances, such as wildfires and grazing by herds of elk and bison. With the elimination of these herbivores and the suppression of fire, shrubs and trees have overtaken many formerly open areas.

In addition to the problems with vegetational succession, Schweinitz's sunflower habitat has been degraded by highway construction and urbanization. Five of the species' 21 recorded populations have disappeared, and most surviving colonies are reduced in size and range. One, for example, has declined 89 percent over

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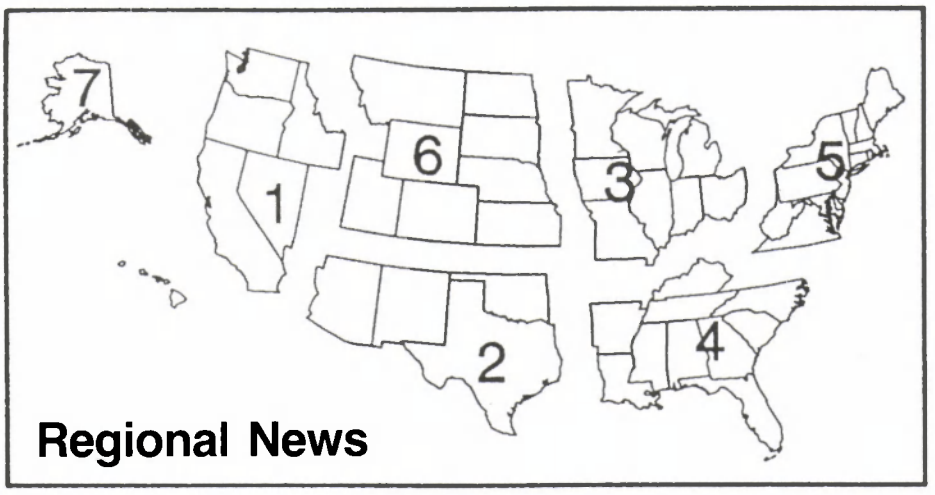

Regional News

Regional endangered species staffers have reported the following news:

Region 1 - On July 19, the Department of Justice and the Fish and Wildlife Service announced that the Gentry-Pierce Business Park near Suisun City, California, had agreed to plead guilty to violating Section 9 of the Endangered Species Act and pay a $50,000 fine. The violation occurred when the developers disked a 157-acre (64-hectare) site known to support the Endangered salt marsh harvest mouse (*Reithrodontomys raviventris*). Although no dead mice were found on the site, the developers were charged with the unauthorized take of a listed species based on the loss of habitat. According to the Justice Department, this is the first prosecution of an Endangered Species Act violation in California that involves a significant modification or degradation of endangered species habitat.

* * *

On July 10, the Fish and Wildlife Service, U.S. Forest Service, and Bureau of Reclamation completed a bald eagle (*Haliaeetus leucocephalus*) management plan for southwestern Idaho. This is the second comprehensive plan directing interagency efforts for bald eagle recovery and management in the State. (The first comprehensive plan was completed for the Yellowstone area.) The plan emphasizes management for foraging areas and several nest sites, and directs the Bureau of Reclamation to establish 6 wildlife management areas totaling 8,170 acres (3,306 hectares).

* * *

Region 2 - Walker's manioc (*Manihot walkerae*), a Category 1 candidate for Federal protection under the Endangered Species Act, is a small shrub native to the lower Rio Grande Valley of southern Texas and northern Mexico. It was described from a specimen collected in Hidalgo County, Texas, by Mrs. E. J. Walker in 1940. Botanists have searched for it since that time, and many believed it to be extirpated in Texas. In May 1990, however, Philip Clayton, a botanist with the Service's Corpus Christi, Texas, Ecological Services Field Office, rediscovered Walker's manioc near La Joya, Texas.

This species occurs at a relatively undisturbed site in the dense, thorny brush that once was widespread in the river valley. Extensive habitat alteration has eliminated most of these brushlands, which also provided habitat for such Endangered animals as the ocelot (*Felis pardalis*) and jaguarundi (*Felis yagouaroundi*). Some remnant tracts are being protected by the Service as units of the Lower Rio Grande Valley National Wildlife Refuge. The Service is now investigating the possibility of establishing colonies of Walker's manioc on nearby refuge lands.

* * *

Region 4 - The seclusive water scavenger beetle (*Paracymus seclusus*), a small, black, aquatic beetle, has been considered a Category 2 candidate for listing action. Until 1988, only three specimens, taken in 1968 from a light trap in Harrison County, Mississippi, were known to exist. Mr. Sam Testa and Dr. Paul Lago

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photo by Philip Clayton

Walker's manioc can be distinguished from similar plants by its lobed leaves. It contains chemical compounds that exude an aroma of almonds when the plant is injured. This species is closely related to the cassava (*Manihot esculenta*), an important food crop in many tropical parts of the world. Walker's manioc is relatively tolerant of drought and cold temperatures, and it may contain genes that could be used to develop commercial cassava that can be grown over a wider range.

Regional News

(continued from page 2)

from the University of Mississippi conducted a study in the spring and summer of 1988 to determine the range and status of the beetle in Mississippi, and found a total of 43 scavenger beetles at 15 sites in 15 counties. The beetle's preferred habitat was identified as emergent spike rush (*Eleocharis* sp.) growing in shallow, sandy areas along the margins of lakes. This habitat type is not uncommon, and has actually expanded in recent years with the construction and maintenance of recreational and flood control reservoirs throughout the Southeast.

Although Testa and Lago found this minute beetle to be uncommon and localized, it was widely distributed in Mississippi. In fact, brief side trips to similar habitat outside of the study area revealed beetle populations in Tuscaloosa County, Alabama, and Lake County, Florida. No threats have been identified for the species or its habitat. Biologists now believe that this species was considered rare because its small size made it difficult to see or collect. As a result of this new information, the Service anticipates that the seclusive water scavenger beetle will no longer be considered a candidate for listing.

* * *

Region 5 - A pair of bald eagles produced two eaglets in New Hampshire this summer, the first time this has occurred since the cooperative recovery program began in the State in 1979. In July, a Fish and Wildlife Service biologist climbed the nest tree and photographed and banded both 6-week-old eaglets. They appeared to be healthy and free of parasites.

* * *

The peregrine falcon (*Falco peregrinus*) breeding season in the Northeast has ended for this year with mixed results. Seven breeding pairs in New Hampshire produced 11 fledglings, the best record to date. Massachusetts had two successful pairs of urban nesting peregines again this year in Boston and Springfield, fledging five young. On the other hand, seven pairs of peregrines in Vermont produced only six chicks, a relatively low success rate. In Maine, only one of the five pairs attempting to nest was successful, producing two chicks. However, two additional peregrine chicks were obtained from the Peregrine Fund and were hacked at the National Audubon Society's Boarstone Mountain Sanctuary near Greenville.

* * *

Region 6 - After last year's first known successful nesting of bald eagles in Kansas, the pair returned to the nest in 1990. This year, the pair raised and fledged three eaglets (compared to two last season). The eaglets were banded and fitted with tail-mounted radio transmitters. Federal and State biologists hope to track the birds and identify the habitats most important to them.

A second active bald eagle nest was documented this year in Hodgeman County in western Kansas. The pair at this nest, located within a stand of cottonwood trees on private agricultural land, fledged one eaglet in 1990. (The nest was rumored to contain one eaglet last year, but this was not confirmed.)

* * *

Curiosity kills more than just cats. In June, an 11-year-old Nebraska boy entered an interior least tern (*Sterna antillarum*) and piping plover (*Charadrius melodus*) colony on an all-terrain vehicle to see if any eggs had hatched. He inadvertently destroyed one nest of each species. Under the Endangered Species Act, his actions could have resulted in penalties of up to a $100,000 fine and/or 1 year in jail. Service biologists and law enforcement agents instead proposed a compassionate alternative, which all parties accepted: the boy and his mother will contribute 40 hours of community service, alerting Platte River recreationists to the presence of the birds. When school starts in the fall, the boy will make presentations to fellow students in the 5th and 6th grades, telling them of his mistake and explaining the need to protect endangered species habitat on the Platte River.

* * *

Region 8 - The Patuxent Wildlife Research Center's Southeast Research Group reports that this year's count of singing male Kirtland's warblers (*Dendroica kirtlandii*) on Michigan's lower peninsula was 265. This count is 20 percent higher than the 1989 census and is the highest since 1961.

Subscriptions

The BULLETIN is distributed by the U.S. Fish and Wildlife Service to Federal, State, and local resource management agencies, cooperating organizations, and other official contacts of the endangered species program. It also is available to all interested individuals on a subscription basis from the University of Michigan, which reprints the BULLETIN in its *Endangered Species UPDATE*. In addition to the BULLETIN reprint, the *UPDATE* contains related items such as a separate feature article, essay, and "bulletin board" column of notices and news briefs. For a yearly subscription of approximately 10 issues, send a check or money order for $23 to: Endangered Species UPDATE, School of Natural Resources, University of Michigan, Ann Arbor, Michigan 48109-1115. There is a $5 student and senior citizen discount (please enclose advisor's signature or proof of age). Add $5 for postage outside of the U.S.

photo by Nora Murdock

Schweinitz's sunflower produces solitary stems up to 6.5 feet (2 meters) tall from a cluster of carrot-like roots. The yellow flowers are about 2.2 inches (5.5 centimeters) in diameter.

Listing Proposals

(continued from page 1)

the last 3 years. Additionally, four of the populations are very small, containing fewer than 40 plants each.

The dependence of Schweinitz's sunflower on sunny locations is illustrated by the fact that 11 of the 15 remaining populations occur along roadsides or in utility line rights-of-way. Although highway and right-of-way maintenance activities tend to control encroaching vegetation, they could threaten the sunflower colonies if herbicides are used or if the sites are mowed during the species' growing season. In response, the North Carolina Natural Heritage Program has worked with the North Carolina Department of Transportation to mark *H. schweinitzii* sites to prevent unintended damage from roadside maintenance. Utility companies also have been contacted and have agreed to alter their mowing schedules in order to protect the species. However, the small populations remain vulnerable to accidents or potential changes in management.

On July 2, 1990, the Service proposed to list Schweinitz's sunflower as Endangered. If this action is approved, it would reinforce and strengthen the protection already afforded *H. schweinitzii* under North Carolina law.

Yellow-blotched Map Turtle (*Graptemys flavimaculata*)

Also known as the yellow-blotched sawback, this medium-sized aquatic turtle is characterized by a shell or carapace with a solid yellow or orange spot in each scute and a ridge of conspicuous dorsal spines. It is endemic to the Pascagoula River system in southeastern Mississippi, including the Leaf and Chickasawhay Rivers and other tributaries. This species faces a number of threats, the most serious of which are habitat modification and deteriorating water quality. On July 11, 1990, the Service proposed to list *G. flavimaculata* as a Threatened species.

The yellow-blotched map turtle requires riverine habitat with a moderate current, sand or clay substrate, sand bars or beaches for nesting, and snags or other debris for basking and shelter from predators. Navigation and flood control projects have removed basking structures and nesting beaches in order to deepen the channel and promote faster water flows. Dredging river bottoms for gravel also has destroyed nesting sites and increased turbidity, which has led to declines in populations of the snails and insects upon which the turtle feeds. Erosion from certain logging and agricultural practices is contributing to stream sedimentation. Water quality is being degraded even further by municipal effluents, dioxin contamination, releases of brine wastes from oil fields, and the permitted discharges of a variety of chemicals.

The turtle's practice of basking on logs and snags gives it refuge from most predators but makes it vulnerable to humans. Some basking turtles are shot by people who use them for target practice. A more serious threat is posed by the pet trade. This very attractive species of turtle has been advertised for retail sale at $65.00 each, and knowledgeable commercial collectors can seriously deplete a local population in a short time. Mississippi lists the yellow-blotched map turtle under State law as endangered and prohibits collecting without a permit, but this restriction is difficult to enforce. The impacts from shooting and collecting grow more serious as the species declines.

If the yellow-blotched map turtle is listed by the Service as Threatened, Federal agencies will be required to ensure that none of their activities are likely to jeopardize the species' survival. Involved Federal agencies could include the U.S. Army Corps of Engineers through its flood control and navigation projects and the Environmental Protection Agency through the Clean Water Act provisions for pesticide registration, wastewater treatment, and effluent discharge permits.

Tulotoma Snail (*Tulotoma magnifica*)

The only species in its genus, *T. magnifica* can be distinguished from other freshwater snails by its ornamentation and large adult size. Its shell is round, somewhat larger than a golf ball, and typically decorated by spiral lines of knob-like structures. As a gill-breathing, filter-feeding mollusk, it needs free-flowing river habitat that is clean and well-oxygenated.

Historically, the tulotoma snail was known from the main channels of the Alabama and Coosa Rivers and the lower reaches of some large tributaries. These rivers, however, have been extensively altered by dredging and impoundments for navigation and hydropower. Further, water quality has been degraded by siltation and by the discharge of municipal and industrial wastes. As a result, the tulotoma snail has been extirpated from the Alabama River, and its range in the Coosa River system has declined at least 98 percent in the main channel (and about 50 percent in the tributaries). Believing the species to be in danger of extinction, the Service has proposed to list *T. magnifica* as Endangered (F.R. 7/11/90).

The only tulotoma snail population known to remain in the Coosa River is on a 3-mile (5-kilometer) reach below Jordan Dam. Water quality problems associated with discharges from the dam, including low levels of dissolved oxygen and altered water temperatures, could affect this population. The Federal Energy Regulatory Commission, which is responsible for the periodic relicensing of dams, will be required to evaluate the impacts of Jordan Dam on the tulotoma snail if the species is listed under the Endangered Species Act. Other Federal agencies whose activities could affect the snail include the Environmental Protection Agency and the Army Corps of Engineers.

Ouachita Rock-pocketbook (*Arkansia* (=*Arcidens*) *wheeleri*)

This freshwater mollusk, previously known as Wheeler's pearly mussel, also is a member of a monotypic genus. Its appearance is characterized by thick, moderately inflated, subovate shells that are chestnut brown to black on the outer surface. Very little is known about the habitat requirements or life history of this species.

The Ouachita rock-pocketbook once was found in the Kiamichi River in Oklahoma, the Little River in southwestern Arkansas, and the Ouachita River in central Arkansas. Like the tulotoma snail, this filter-feeding mollusk declined sharply as its riverine habitat was impounded, dredged, and polluted. A recent status survey located two surviving populations. Approximately 1,000 of the mussels are estimated to occur in an 80-mile (130-km) reach of the Kiamichi River, and a population of fewer than 100 exists within a 5-mile (8-km) segment of the Little River. The species apparently is extirpated from its namesake, the Ouachita River.

Because any further habitat damage could eliminate these low-density populations, the Service has proposed to list the Ouachita rock-pocketbook as Endangered (F.R. 7/23/90). If the proposal is approved, Federal agencies such as the Environmental Protection Agency, Army Corps of Engineers, and Federal Energy Regulatory Commission will be required to plan for the well-being of the mussel during their activities.

photo by Patricia Mehlhop

Ouachita rock-pocketbook

Final Listing Rules Approved for Six Species

During July of 1990, listing rules for six species — five plants and one mussel — were made final. Endangered Species Act protection is now available to the following:

Purple Cat's Paw Pearly Mussel (*Epioblasma* (*Dysnomia*) *obliquata obliquata* (=*E. sulcata sulcata*))

This 3- to 4-inch (7.5- to 10.0-centimeter) freshwater mussel has fine, wavy, green rays on its shell. Historically, this subspecies occurred throughout the Ohio River and its large tributaries in Ohio, Indiana, Illinois, Kentucky, Tennessee, and Alabama. The construction of large impoundments on the rivers, however, reduced the mussel's preferred riverine gravel/sand habitat and likely affected the distribution and availability of the mussel's fish host. Today, only two relic, apparently nonreproducing populations exist, one in a reach of the Cumberland River in Tennessee and one in a reach of the Green River in Kentucky. Unless undiscovered reproducing populations exist or methods can be developed to maintain the known populations, the species will probably soon become extinct. The Green River population is threatened by water pollution from oil and gas activities, by altered stream flows from upstream reservoirs, and by commercial fishing for other mussels. The Cumberland River population is potentially threatened by river channel maintenance, navigation projects, gravel dredging, and incidental commercial take. The Fish and Wildlife Service proposed listing the purple cat's paw pearly mussel as Endangered in the July 27, 1989, *Federal Register* (see BULLETIN Vol. XIV, No. 8), and the final rule was published July 10, 1990.

Five San Joaquin Valley Plants

A final rule to list four herbs and one cactus endemic to grasslands and adjacent plant communities in the southern San Joaquin Valley and neighboring areas of California was published in the July 19, 1990, *Federal Register*. About 96 percent of the native habitat in which these plants once occurred has been lost, primarily due to urbanization and agricultural conversion. Four species were listed as Endangered:

California jewelflower (*Caulanthus californicus*) - This annual herb, a member of the mustard family (Brassicaceae), grows to about 1 foot (30 centimeters) in height and has translucent white flowers with purple to green tips. It once was known from 47 sites, but only 9 natural populations and one introduced population of the plant now exist.

Kern mallow (*Eremalche kernensis*) - This annual herb in the mallow family (Malvaceae) grows up to 4 inches (10 cm) high and has white to rose-pink or lavender flowers. Only four populations remain. Maintenance of transmission lines, telecommunication and electrical line construction, oil and gas development, and livestock grazing are potential threats to the species.

San Joaquin wooly-threads (*Lembertia congdonii*) - A member of the sunflower family (Asteraceae), this annual herb has white-wooly stems that grow to about 10 inches (25 cm) in length and often trail on the ground. Only 9 sites still support populations of this plant. (Another 10 sites do not have plants but still have apparently suitable habitat.) These populations are threatened by livestock grazing, agricultural conversion, urbanization, sand and gravel extraction, oil and gas development, a proposed flood control project, and off-road vehicle use.

Bakersfield cactus (*Opuntia treleasei*) - This low-growing cactus has large magenta flowers and occasionally spreads to form extensive thickets. Once abundant, the Bakersfield cactus now occurs in small, isolated colonies in five general areas. Threats to these colonies include urbanization, oil and gas development, off-road vehicle use, sand mining, livestock grazing, a proposed flood control project, agricultural conversion, aqueduct and transmission line maintenance, road widening, collecting, and illegal dumping.

Another San Joaquin Valley plant species was listed as Threatened:

Hoover's wooly-star (*Eriastrum hooveri*) - An annual herb in the phlox family (Polemoniaceae), this plant grows up to 3 inches (7.5 cm) high and has white flowers. The species is known to occur on 118 sites, including 80 that were located after the proposed rule was published. Livestock grazing, a proposed reservoir, oil and gas development, agricultural conversion, and urbanization are among the potential threats facing the remaining populations.

The Service first published a proposal to list the California jewelflower, Kern mallow, San Joaquin wooly-threads, and Bakersfield cactus as Endangered and Hoover's wooly-star as Threatened in the July 27, 1989, *Federal Register* (see BULLETIN Vol. XIV, No. 8).

Research Continues on Augmentation of the Southern Selkirk Mountain Caribou Herd

Eric Rominger
National Ecology Research Center
Fort Collins, Colorado

Woodland caribou (*Rangifer tarandus caribou*) once occurred widely in forested regions from southeastern Alaska, through much of Canada, to the northern conterminous States. Due to extensive habitat alteration and unrestricted shooting, however, only one population still naturally occurs in the conterminous United States. In 1983, this remnant herd, which occurs in the Selkirk Mountains of northern Idaho, northeastern Washington, and southeastern British Columbia, was estimated at 25-30 individuals. The animals in this herd were rarely seen in the United States because most of their seasonal habitats were in Canada. The potential threats to the survival of the southern Selkirk Mountain caribou herd while in the United States, including poaching, habitat loss, collisions with motor vehicles, and genetic problems from inbreeding, led the Fish and Wildlife Service to list the population as Endangered in February 1984 (see BULLETIN Vol. IX, No. 3).

To reduce the danger of extinction, the Fish and Wildlife Service, Idaho Department of Fish and Game, Washington Department of Wildlife, and British Columbia Wildlife Branch undertook a 3-year effort to augment the southern Selkirk Mountain herd with caribou from larger herds in British Columbia. The translocations began in 1987, with 12 caribou taken from a herd near Revelstoke and 12 from a herd near Anahim Lake. They were released in the United States in the Selkirk Mountains near Bonners Ferry, Idaho. During 1988, 24 more animals were captured from these populations and added to the southern Selkirk Mountain herd. The augmentation effort ended in 1990, with 12 more woodland caribou being added to the Selkirk herd from a third Canadian population near Wells-Gray Provincial Park. Prior to their release in Idaho, all of the captured woodland caribou were tested and found free of tuberculosis and brucellosis. Additionally, all were radio-collared to enable biologists to monitor the animals.

During the first year of the augmentation effort, several of the caribou released in Idaho were located at different times in Washington, Montana, and British Columbia. Three of the caribou emigrated to a herd east of Creston, British Columbia, a distance of approximately 34 miles (55 kilometers). Caribou released in 1989 and 1990 were more sedentary; most of them joined extant groups of previously transplanted caribou in the Selkirk Mountains.

The mortality rate for adult caribou released in Idaho has been higher than that reported for stable populations, with 21 radio-collared caribou known to have died since 1987. Causes of mortality include predation (by bears and mountain lions) and accidents, including collisions with motor vehicles along British Columbia Highway 3 (which bisects the Canadian portion of the caribou herd's range). There was one known poaching incident involving a young bull taken in Washington in 1988, which is under investigation by State and Federal authorities. Biologists hope that adult mortality rates will stabilize as the caribou become more familiar with their new habitat.

Since the beginning of the southern Selkirk Mountain caribou herd augmentation effort, the Service's National Ecology Research Center, U.S. Forest Service, Idaho Department of Fish and Game, University of Idaho, and other State and Provincial agencies have been conducting research on the herd, in collaboration with the International Mountain Caribou Technical Committee. The Service's research has focused on early-winter habitat requirements of the caribou herd. It is during this season that woodland caribou begin to switch from a diet of vascular plants to a late-winter diet comprised almost exclusively of arboreal lichens and conifer needles. During early winter, caribou primarily use mature old-growth stands of western red cedar/western hemlock and subalpine fir/Engelmann spruce, along with the ecotone between these communities. Timber harvesting operations within the Selkirk caribou range have reduced the availability of this habitat. The Forest Service has imposed a moratorium on cutting old-growth cedar/hemlock stands within early winter habitat while the relationship between caribou habitat needs and current stand conditions are assessed.

Today, the southern Selkirk Mountain caribou herd is estimated to number at least 60 to 70 animals, excluding calves born this past June. Radio-collared caribou have been observed in rutting groups, both in the United States and with resident animals in Canada. Although the caribou herd is now larger and appears to be more secure than when it was listed, biologists will continue to monitor the population and its habitat to ensure the herd's recovery.

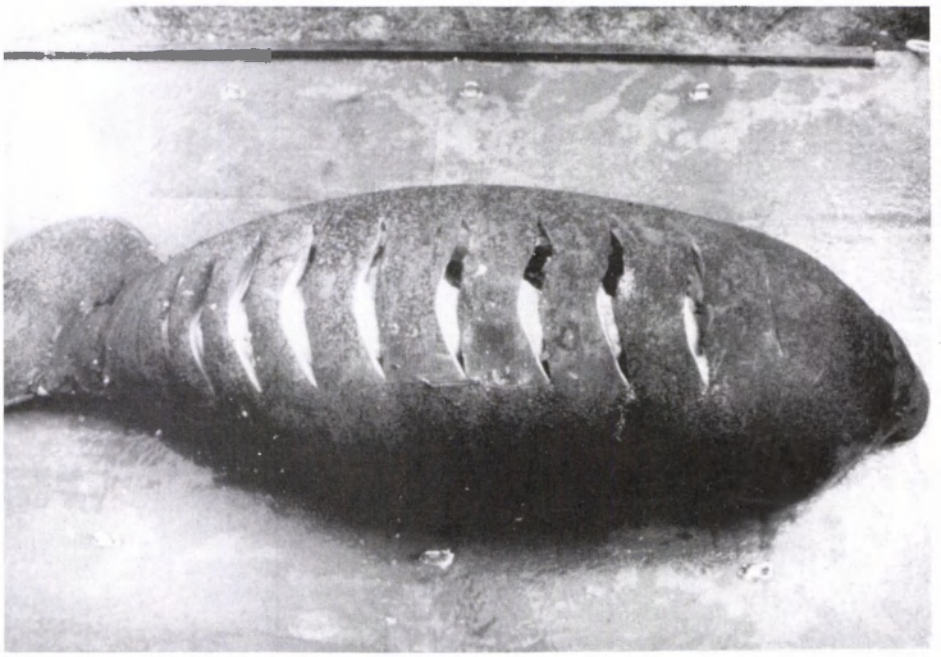
photo by Idaho Fish and Game

Florida Adopts New Manatee Protection Law

Robert O. Turner
Manatee Coordinator
Jacksonville, Florida, Field Office

Boat collisions are the primary human-related cause of manatee (*Trichechus manatus*) injuries and deaths in Florida. Last year, collisions accounted for 51 of the 166 manatee deaths in the State (see BULLETIN Vol. XV, No. 5). Most of the approximately 1,200 remaining manatees in the State's waters have scars from boat collisions. To address the growing problem, the Florida legislature has strengthened the Florida Manatee Sanctuary Act. Many organizations and agencies, including the Save the Manatee Club, the Florida Department of Natural Resource's Division of Marine Resources, and the Fish and Wildlife Service's Jacksonville and Vero Beach, Florida, Field Offices, worked together to help enact the bill. Such legislation was recognized as an important priority in the revised Florida Manatee Recovery Plan.

The new State law expands Florida's authority to protect manatee habitat, adopt rules to protect manatees from harassment, and designate areas as manatee sanctuaries. Navigational signs to prevent collisions with boats can now be placed on State bottomlands without State land leases. Another highlight of the statute is an increase in revenues dedicated to the Save the Manatee Trust Fund. Over $730,000 will now be earmarked for the fund each year from boat registration revenues—a large increase over the $250,000 formerly allocated for this purpose. In addition, all of Florida's counties now have the option to increase their own boat registration fees by 50 percent and to use the funds for manatee protection. Previously, only counties with a population of at least 100,000 people were authorized to increase these fees.



Sirenia Project, U.S. Fish and Wildlife Service

...what Florida's new manatee protection law is intended to prevent. Motorboat propeller wounds caused this manatee's death. Most surviving adult manatees in Florida waters carry scars from similar encounters with speeding boaters.

Under the new legislation, local governments are authorized (once they receive State approval) to regulate motor boat speed and operation for manatee protection in waters within their jurisdiction. Also, the Florida Department of Natural Resources is now authorized to establish speed zones around power plant warm-water discharge ponds during any time of the year. Previously, the time limit set for these restrictions was from November 15 to March 31.

The manatee population in Florida has been declining for many years, due in large part to boat collisions. As Florida's human population continues to grow, the number of powerboats will increase along with the potential for manatee injury, mortality, and harassment. It is hoped that Florida's new law will help reverse the decline of the manatee population.

New Publications

The Stanford Environmental Law Society has published *The Endangered Species Act: A Guide to Its Protections and Implementation*. This handbook provides a comprehensive analysis of the Act, from its origins through the passage of the 1988 amendments, and includes discussions of legislative history and judicial opinions. Chapters in the handbook address such topics as listing and critical habitat designation, takings and other prohibited acts, recovery plans, Section 7 interagency consultations and constraints on Federal activities, and international aspects of the Act. The handbook is available for $12.00 plus $1.50 shipping from the Stanford Environmental Law Society, Stanford Law School, Stanford, California 94305-8610.

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"Mammals of the La Selba-Braulio Carrillo Complex, Cost Rica," by Robert M. Timm, Don E. Wilson, Barbara L. Clauson, Richard K. LaVal, and Christopher S. Vaughan was published in 1989 in the Fish and Wildlife Service's research publication series as *North American Fauna* Number 75. The publication discusses 142 mammal species occurring in the 128,000-acre (52,000-hectare) complex, including several listed Endangered species and other species on the CITES list. This issue marks the centennial of *North American Fauna*, which was first published in 1889. Copies may be requested from the Service's Publications Unit, Room 130 - ARLSQ, 1849 C Street, N.W., Washington, D.C. 20240.

* * *

"Habitat use and streamflow needs of rare and endangered fishes, Yampa River, Colorado," by Harold M. Tyus and Catherine A. Karp, was published by the Service in 1989 as *Biological Report* 89(14). It discusses conservation needs of the Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*) in the Yampa River. This report also is available from the Service's Publications Unit.

BOX SCORE
LISTINGS AND RECOVERY PLANS

Category	ENDANGERED U.S.	ENDANGERED Foreign Only	THREATENED U.S.	THREATENED Foreign Only	LISTED SPECIES TOTAL	SPECIES WITH PLANS
Mammals	53	244	8	22	327	25
Birds	76	145	11	0	232	81
Reptiles	15	59	17	14	105	24
Amphibians	6	8	5	0	19	5
Fishes	51	11	33	0	95	47
Snails	3	1	6	0	10	7
Clams	37	2	1	0	40	28
Crustaceans	8	0	2	0	10	4
Insects	11	1	9	0	21	12
Arachnids	3	0	0	0	3	0
Plants	178	1	59	2	240	108
TOTAL	441	472	151	38	1102*	321 **

Total U.S. Endangered **441** (263 animals, 178 plants)
Total U.S. Threatened **151** (92 animals, 59 plants)
Total U.S. Listed **592** (355 animals, 237 plants)

*Separate populations of a species that are listed both as Endangered and Threatened are tallied twice. Those species are the leopard, gray wolf, grizzly bear, bald eagle, piping plover, roseate tern, Nile crocodile, green sea turtle, and olive ridley sea turtle. For the purposes of the Endangered Species Act, the term "species" can mean a species, subspecies, or distinct vertebrate population. Several entries also represent entire genera or even families.

**There are 266 approved recovery plans. Some recovery plans cover more than one species, and a few species have separate plans covering different parts of their ranges. Recovery plans are drawn up only for listed species that occur in the United States.

Number of Cooperative Agreements signed with States and Territories: 53 fish & wildlife
39 plants

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ENDANGERED SPECIES

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